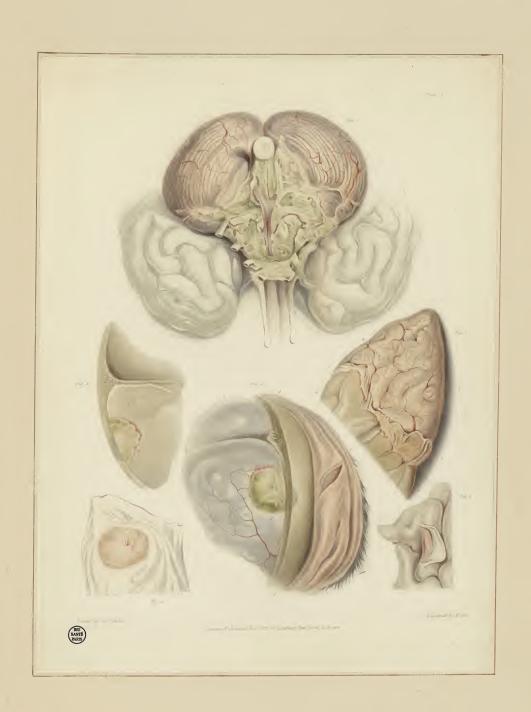


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Richard Singht. MB



PURIFORM LYMPH DEPOSITED AT THE BASIS OF THE CEREBELLUM AND PONS VAROLII, IN CONSEQUENCE OF INFLAMMATION SUCCEEDING A BLOW.

Fig. 1. This deposit was placed beneath the arachnoid; and the vessels and the origins of the nerves were enveloped in it:—a, marks where a vessel, probably a vein, was seen running on the cerebellum, distinctly filled with the same puriform matter: and b, marks a similar appearance in a vessel on the base of the middle lobe of the cerebrum. (Case XII. p. 35.)

Fig. 2. Represents the appearance of the anterior part of the dura mater in the same case, when the calvaria had been removed and the membrane had been slightly drawn up to show the extent of the disease more completely.

cc, a portion of the dura mater covering the anterior lobes of the cere-

dd, a part of the frontal bone, with slight discoloration near the seat of the injury, from the death of a circumscribed portion of bone. ee, the scalp turned back.

f, a deposit of pus between the frontal bone and the dura mater, partially surrounded by a zone of very fine vessels, which appear to be supplied with blood from a large artery seen on the dura mater.

Fig. 3. The upper portion of the frontal bone which had been removed, showing (g) the appearance of the bone, corresponding with the deposit of pus upon the dura mater. This was surrounded by a zone of vessels, corresponding with those on the dura mater, except that on the membrane they had been partially covered in one part by the pus. The tracks of the vessels were marked upon the bone by little canals.

Fig. 4. The interior surface of the dura mater, showing the state of that portion which corresponded with the external deposit of pus. The membrane was minutely vascular at this part, and so much thickened as to make an obvious depression on the convolutions, but it did not appear to adhere to the arachnoid covering them.

Fig. 5. The appearance produced by Arachnitis, when it causes a close adhesion of the pia mater to the brain. (Case LXVIII. p. 135.) hh, a portion of cerebrum, covered by its arachnoid and pia mater, transparent and apparently of their usual consistence.

ii, a portion of the arachnoid and pia mater drawn back, and carrying with them a layer of nearly half the thickness of the cineritious substance.

kk, the remaining part of the cineritious substance; the two torn surfaces are seen slightly granular, and indented by the insertion of vessels.

Fig. 6. Shows the Separation of the outer layer of the Cineritious Substance, from chronic change, independently of obvious inflammation; a flake of the cineritious substance is seen turned back. (Case CXLIII.



PLATE II.

CHRONIC SEROUS CYST.

- Fig. 1. A cyst, containing half a pint of serous fluid, discovered in the fissura Sylvii of the left hemisphere, in a man who died of fever. This cyst appeared to be composed of layers of the arachnoid, or of thin adventitious structures, closely attached to that membrane. It had left a deep and permanent depression on the anterior lobe of the cerebrum, and the large vessels appeared to continue their course behind it, on the brain, without suffering any interruption. (Page 438.) A smaller cyst of the same description is represented, Plate XXI. Fig. 4., together with the permanent depression corresponding to it in the bone of the skull. (Fig.1.)

 a, the anterior lobe of the left hemisphere.

 - b, slight sketch of the medulla oblongata.
 - pons Varolii.
 - d, optic nerves.
 - ee, external surface of the cyst.
 - ff, a portion of the external layer of the cyst thrown back.
 - gg, a portion of the internal layer.
 - h, a large vessel passing behind the cyst and covered by a membrane.

TUMOUR OF THE PONS VAROLII.

- Fig. 2. Morbid enlargement of the Pons Varolii, involving the third, fourth, fifth, sixth, seventh, and eighth pair of nerves, all of which were soft, and somewhat indistinctly seen. (Case XXI. p. 48.)
 - i, sketch to mark the section of the spinal cord.
 - j, the cerebellum.
 k, the optic nerves.

 - l, the accessory nerves.
 - m, the situation of the eighth nerve.
 - n, the seventh pair of nerves.
 - o, the sixth pair of nerves.
- p, the fourth pair.—The fifth is seen emerging from the middle of the tumour on the left side, and was traced on the right side, but was quite soft.
 - q, the third pair of nerves.
 - r, infundibulum distended with serum.
 - t, the projections of the tumour.
 - u, the vertebral arteries at their junction.

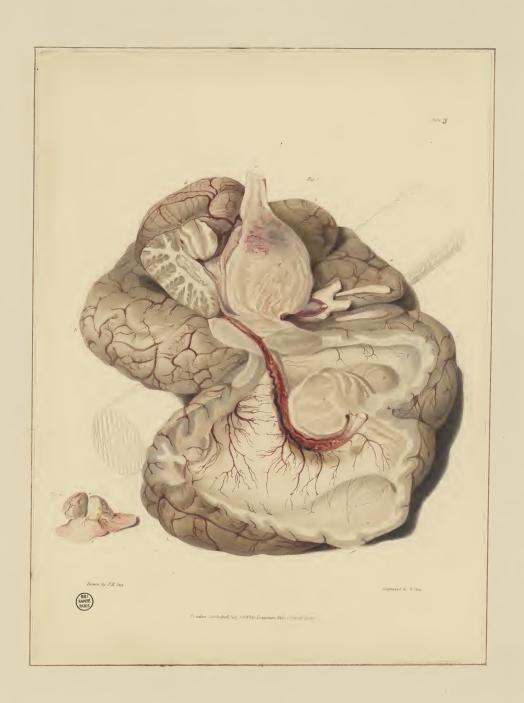


PLATE III.

TUMOUR OF THE PONS VAROLII;—THE VENTRICLES DISTENDED WITH

Fig. 1. Represents the inferior part of the brain, of which a portion is given in Plate II. Fig. 2. In this drawing a section has been made through the diseased pons Varolii, rather to the left of the middle line, and a portion of this, together with part of the cerebellum, has been removed, and the left lateral ventricle has been drawn open to display its extent, greatly enlarged by the effusion of serous fluid; the turgid state of the vessels is also remarkable. (Case XXI. p. 48.)

a, the anterior lobes of the cerebrum.

- b, the posterior lobes of the cerebrum.
- c, the middle lobe of the right hemisphere.
- d, part of the cerebellum.
- e, the section of the cerebellum.
- f, the commencement of the spinal cord.
- g, the section of the pons Varolii, showing a general enlargement of its substance by a gelatinous infiltration amongst its fibres.
 - h, the olfactory nerves.
- i, the optic nerves.
- j, the infundibulum distended with serum.
- k, the choroid plexus, of which the great vein is much distended with blood.
 - l, the superior part of the lateral ventricle.
- m, the posterior cornu of the lateral ventricle.
- n, the anterior cornu of the lateral ventricle.
- o, the brain thrown back, which if replaced would nearly correspond with l.
 - p, the corpus striatum.
 - g, the optic thalamus.

Fig. 2. A Scrofulous Tumour, taken from between the hemispheres of the cerebrum in a child who died of hydrocephalus. (Case XVI. p. 40.) r, the tumour. s, a small portion of the brain to which it was attached.



PLATE IV.

 I_{T} was intended to represent in this Plate the irritated state of the intestines of children from taking calomel (page 73.), and ulceration of the intestines, connected with great cerebral irritation (Case XXXI. & XXXII.); but it was not engraved, for reasons given in the Introduction.

PLATE V.

THE LARGE VEINS RUNNING INTO THE LONGITUDINAL SINUS FILLED WITH FIBRIN.

This Plate represents the brain, when the dura mater was first removed, in Case XXIV. p. 57: aa, the anterior lobes: bb, the posterior lobes of the cerebrum. Part of the dura mater is seen thrown back in folds. The large veins running towards the longitudinal sinus are filled with a firm fibrinous coagulum, as if injected with wax, and a thin layer of blood is seen effused beneath the arachnoid.



PLATE VI.

EXTRAVASATION IN THE BRAIN FROM OBSTRUCTED CIRCULATION.

Fig. 1. The same portion of brain as that represented in Plate V., a section having been made so as to divide it completely, and enable us to bring its lower cut surface into view, showing the effect produced on the internal circulation of the brain by the obstruction of the large veins.

a, the anterior part.

b, the posterior part.

c, corresponds with b in Plate V. and shows the effects of the extreme congestion which has resulted from the obstructed circulation through the large veins: the minute clots, formed by the rupture of vessels, are seen most numerous about the external and internal margin of the cincritious substance.

d, corresponds with another portion of Plate V., in which the large vein was greatly obstructed; and here the same process of extravasation had taken place, to so great an extent, that the substance of the brain, but more particularly the cineritious matter, was rendered quite soft and disorganized.

e, is placed opposite to a patch of the same small clots which appear to be in the centre of the brain, but are in fact arranged round the cineritious matter of one of the convolutions which has been cut into.

Fig. 2. Is a small portion of the brain magnified, showing the spots to be distinct coagula, without any appearance of their being contained in



PLATE VII.

FUNGOID TUMOUR IN THE BRAIN.

Fig. 1. Represents the superior part of the brain, (Case LXV. p. 126,) a curved longitudinal incision having been made, in order to show the fungoid tumour discovered in the posterior lobe of the left hemisphere.

a, the anterior part.

b, the posterior part.

c, a portion of the softened brain thrown back, to show the tumour: in this, and around the whole tumour, may be seen, the yellow colour acquired by the soft diseased portion of the brain.

Fig. 2. The tumour removed from the brain and placed upon the table, a section having been carefully made in a longitudinal direction, the part e corresponding to the posterior, the part d to the anterior part of the tumour, as seen in its natural situation. The structure of the tumour is here represented; the lower and external parts, firm and having an indistinctly vesicular appearance, which was perhaps, in part, derived from the division of vessels: the upper and interior part, soft and albuminous in appearance, offering so little resistance, that the tumour, placed on the table, fell open by its own weight.

PLATE VIII,

Was intended to represent the fungoid disease, which occurred in the lungs of the patient from whom Plate VII. was taken, and likewise the appearance of emphysema of the lungs, described in page 209: but this has not been engraved.

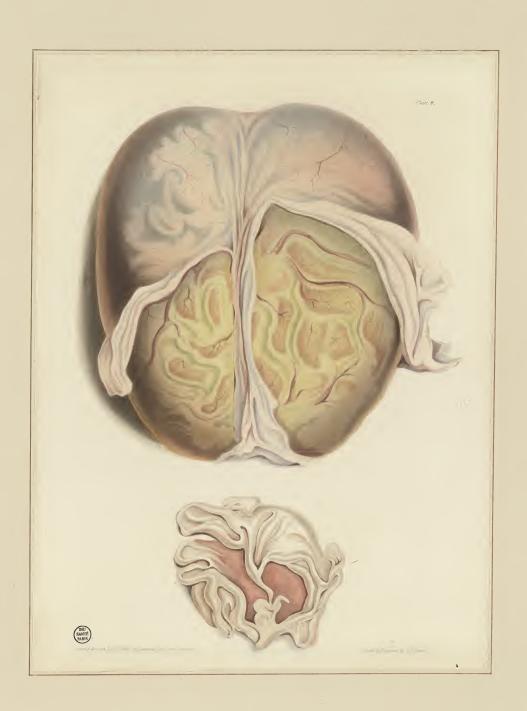


PLATE IX.

PURIFORM FLUID BENEATH THE ARACHNOID.

Fig. 1. The upper part of the brain, puriform lymph having been effused beneath the arachnoid. (Case LXX. p. 138.) The dura mater is partially raised from the anterior lobes, and thrown back to show a portion of the diseased surface; the same appearance was universal, and extended over the basis and down the whole spinal column.

MEDULLARY SUBSTANCE INDURATED.

Fig. 2. A portion of brain from a child, with effusion external to the brain, showing the appearance of the hardened medullary substance of the convolutions, when the soft and pulpy cineritious matter had been removed by gently washing it in water. (Case XIX. p. 45.)

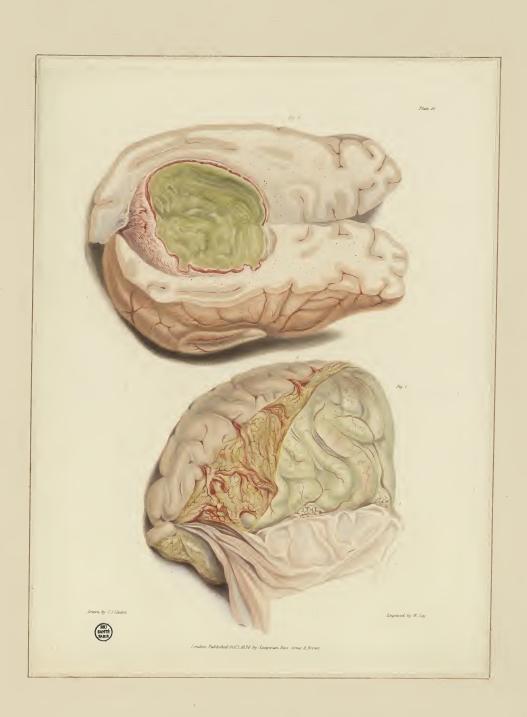


PLATE X.

PURIFORM LYMPH BENEATH THE ARACHNOID.

Fig. 1. Arachnitis followed by the effusion of puriform lymph into the arachnoid and pia mater. (Case LXIX. p. 187.)

aa, a portion of the dura mater turned back, still attached to the

arachnoid near the division of the hemispheres.

bb, a portion of the cerebrum covered by the arachnoid, which is loaded with puriform lymph.

cc, a portion of the arachnoid and pia mater drawn back, exhibiting the vascularity of the pia mater, and showing that the puriform lymph is entirely contained within these membranes.

dd, the convolutions of the brain, from which the membranes have been drawn back.

ENCYSTED ABSCESS IN THE BRAIN.

Fig. 2. Encysted abscess in the middle lobe of the left hemisphere (Case LXXIV. p. 155.), most probably the result of an injury occasioned by a blow.

This Figure represents the cyst laid open by an horizontal section, the upper portion being thrown back. The cyst approached very close to the bone, which was carious. It was formed of three layers, and filled with a thick tenacious pus.

ee, represents part of the external white layer, formed apparently of medullary matter and very vascular, and within this is seen a thicker red layer of excessive vascularity; within which, again, was a lining membrane irregularly distributed, and of a flocculent structure.—The external layer has been exposed by the spontaneous separation of the soft medullary matter with which it was surrounded; and at f, another portion of the external membrane is seen projecting into the lateral ventricle.

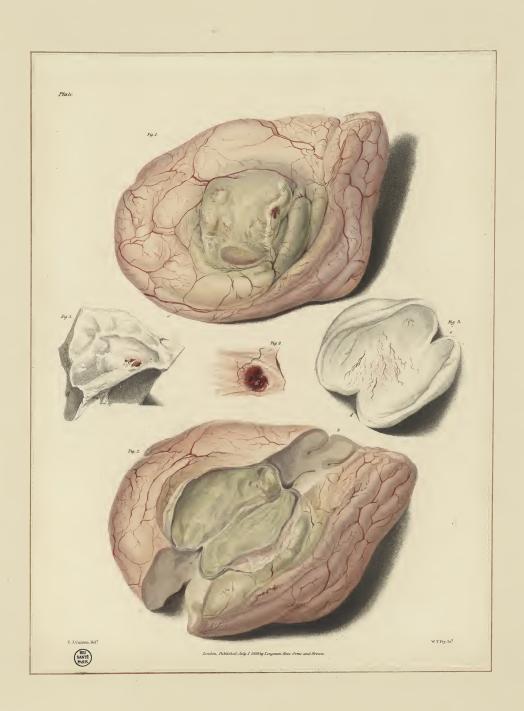


PLATE XI.

CEREBRAL ABSCESS.

 $T_{\rm HE}$ whole of the Figures in this Plate are to illustrate the appearance of the brain in Case LXXIII. p. 149, where an encysted abscess had formed in the right hemisphere of the cerebrum.

- Fig. 1. The middle lobe of the right hemisphere of the cerebrum seen externally, the arachnoid and pia mater not having been removed:—ab, mark the direction in which an incision was made, as represented in Fig. 2.—c, is a vascular point corresponding to the portion of dura mater seen in Fig. 4.
- Fig. 2. The same portion of the brain as Fig. 1., an incision having been made almost to the bottom of the abscess to show its extent, the mucous character of the pus it contains, and the thickness of the cyst by which it is surrounded.
- Fig. 3. A sketch of the cyst, to show its firm substance, and the way in which vessels were seen running inwards from its parietes.
- Fig. 4. The portion of dura mater which corresponded with the mark at c, Fig. 1.
- Fig. 5. The petrous portion of the temporal bone, showing an incipient state of disease where the abscess pressed upon it, and corresponding with the outside of the dura mater, Fig. 4.



PLATE XII.

HERNIA CEREBRI.

Fig. 1. The appearance described in Case LXXVI. p. 161, when the skull was raised, and the anterior portion of the dura mater was exposed:—aaaa, shows the extent to which obvious mischief had proceeded in the right hemisphere, marked by more than usual vascularity around its edges.

bb, is the remaining portion of the skull.

cc, the scalp turned back.

 d, a thin layer of coagulable lymph.
 ee, the gray appearance of the dura mater beneath the injured portion of the bone.

ff, the protruding mass.

Fig. 2. The same portion of brain, together with a part of the left hemisphere, the dura mater having been removed.

fff, the protruding portion of brain.

gg, pus deposited on the surface of the arachnoid in both hemispheres.

Fig. 3. A perpendicular section from behind forwards through the diseased portion.

 \hat{f} , a portion of the protruded mass.

j, a portion of the produced mass.
h, the substance of the brain broken down, and mixed with blood and puriform matter, seen extending quite to the roof of the ventricle.
i, the anterior part of the lateral ventricle.
j, numerous small clots of blood in the neighbouring portion of the brain, which was otherwise comparatively healthy.

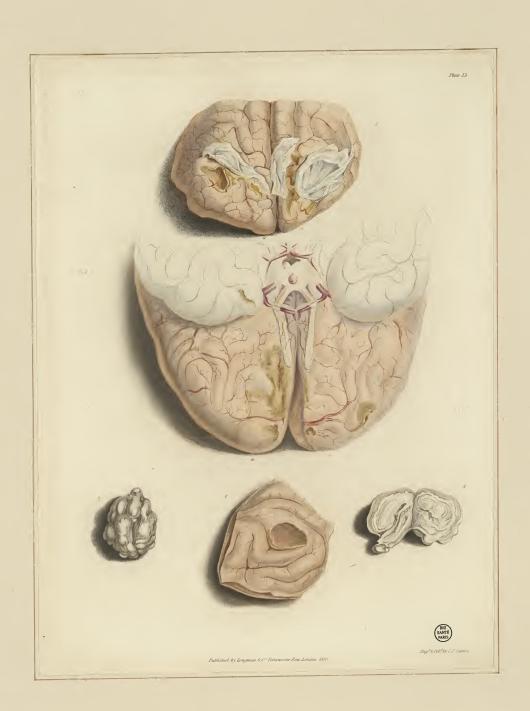


PLATE XIII.

SUPERFICIAL DISORGANIZATION OF THE CONVOLUTIONS.

- Fig. 1. The under surface of the anterior lobes of the cerebrum, with a portion of the middle lobes in outline. The surface of the convolutions are marked by several small patches of a yellow brown colour, where the cineritious substance was softened and eroded; but whether from the effects of ulceration, or the disorganization consequent upon the injury produced by concussion or the rupture of vessels, is not ascertained. (Case LXXII. p. 148.)
- $F_{\rm IG}$. 2. A portion of the left hemisphere of the cerebrum, showing a superficial excavation of one of the convolutions. (Case CXXI. p. 251.)
- Fig. 5. The superior and anterior portion of the cerebrum affected with superficial disorganization, showing several yellow eroded patches, with the dura mater adherent round their edges, probably the result of concussion, in a woman who died with severe tetanic symptoms.

SCROFULOUS TUBERCLES.

- ${f F}_{{f I}{f G}}$. 3. The external appearance of a scrofulous tubercle taken from the cerebellum in a case of discharge from the ear, with caries of the bone.
- $F_{\rm IG}.$ 4. A section of the same tumour, showing its laminated structure and its tendency to soften at the centre. (Case LXIII, p. 121.)

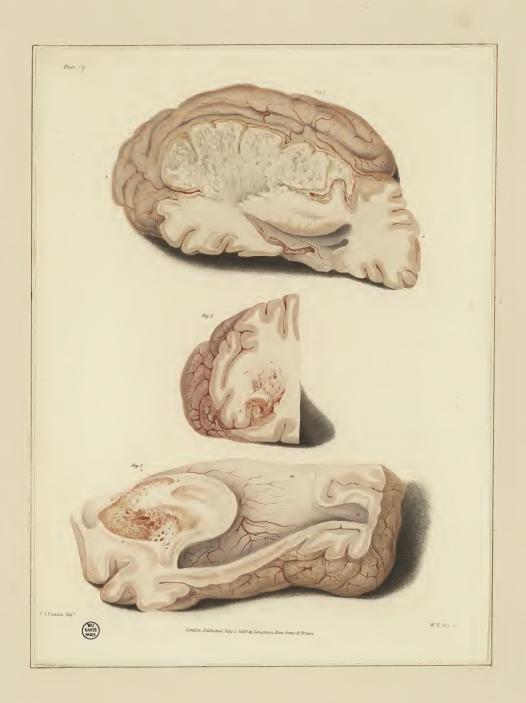


PLATE XIV.

SOFTENING OF THE BRAIN.

Fig. 1. A portion of the middle and posterior lobes of the left hemisphere of the cerebrum in a state of softening, taken from a man 63 years of age, who had been seized with sudden and complete hemiplegia. The section is made horizontally through the lateral ventricle. The medullary portion has assumed a broken curdlike appearance, while the cortical part has become yellow and disorganized. (Case LXXXI. p. 177.)

a, the anterior; b, the posterior portion of the brain.

- c, a portion of the cortical substance, become diseased without any change having taken place in the corresponding portion of medullary matter, appearing to render it probable that the disease had its commencement in the cortical substance.
 - d, the softened portion of the medullary substance.
 - e, the cavity of the lateral ventricle.

 $F_{\rm IG}$. 2. Softening, or possibly commencing suppuration, in the posterior lobe of the cerebrum, connected with abscess in several parts of the body. (Case LXXIX. p. 170.)

f, the softening of the medullary portion, which was most extensively affected, but the larger part had been removed by the section.

g, the cortical portion where most diseased.

Fig. 3. A perpendicular section of the lower part of the right hemisphere of the cerebrum, passing through the corpus striatum, which is softened, and laying open the lateral ventricle, which has been distended by fluid. (Case LXXXV. p. 191.)

h, a portion of the optic thalamus.

 $\hbar i$, points out a portion of the cineritious substance of the corpus striatum, which retains nearly its natural structure.

kl, includes a part of the corpus striatum, softened and broken down. mno, different parts of the distended ventricle.

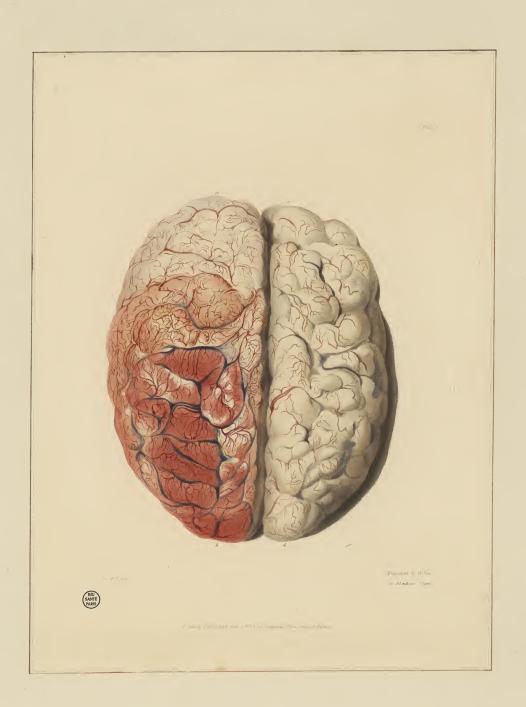


PLATE XV.

SOFTENING OF THE BRAIN.

This Plate represents the upper part of the two hemispheres of the cerebrum, when the dura mater had just been removed:—a, the anterior, b, the posterior, part of the left hemisphere, which was the seat of disease; c, the anterior, and d, the posterior, part of the right hemisphere, which was nearly natural. (Case LXXXIII. p. 185.) The flatness of the convolutions and their breadth in the left hemisphere, when compared with those of the right, is very remarkable, and this was owing to the softened condition of the brain on that side. The fine membranes covering the brain exhibited, on the left hemisphere, the most extraordinary specimen of minute vascularity, which, with a very slight discolouration from blood which seemed to have exuded from the vessels, produced the strong red colour here represented: the minute vascularity is only introduced in two of the convolutions, on account of the labour which it would have required to finish the whole in the same way; but wherever the red colour prevails, the vascularity was equal to the most minute portions of this engraving.

The right hemisphere is somewhat more slightly sketched than the left, and is partly introduced for the sake of comparison, being nearly natural; but as a small quantity of serous fluid was effused between the convolutions, they were, in some parts, rather more separated and rounded than in perfect health.

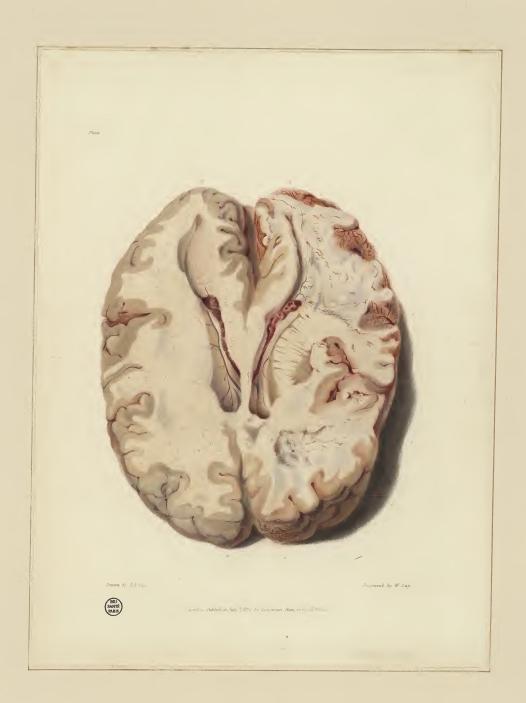


PLATE XVI.

SOFTENING OF THE BRAIN.

This Plate represents the lower part of the same brain, which is seen in the last Plate, when the upper part had been removed to a level with the middle of the lateral ventricles:—aa, the anterior lobes; bb, the posterior lobes. (Case LXXXIII. p. 185.)

The section of the right hemisphere has been carefully finished, in order to represent the softened condition both of its anterior and its posterior lobes, which contrast themselves with the nearly natural state of the middle of that hemisphere. cccc, point out those parts in which the softening is most remarkable, and which correspond generally with the most vascular parts on the surface of the hemispheres, the cineritious substance having become peculiarly ill-defined and indistinct in those parts.

The section of the left hemisphere has been less carefully finished, having been natural in its structure; and it is introduced chiefly with a view of affording a subject of comparison between the corresponding healthy and diseased parts.

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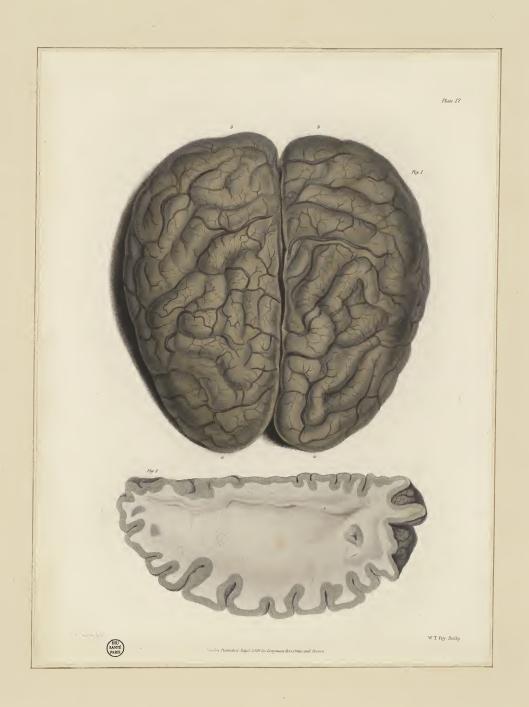


PLATE XVII.

EXTREME CEREBRAL CONGESTION.

 $T_{\rm HE}$ brain here represented was taken from an old man, who died of fever, and whose lungs were in a most marked emphysematous state throughout. (Case CI. p. 219.)

Fig. 1. The upper part of the cerebrum when the dura mater was removed. The large veins are here seen turgid with dark blood; and the convolutions still covered by the arachnoid and pia mater are of a dark carbonaceous colour:—aa, the anterior, bb, the posterior, part of the hemispheres (p. 219.).

Fig. 2. The upper part of one of the hemispheres removed, and turned up, to show the general internal appearance of the brain;—the dark carbonaceous colour pervading the cineritious substance,—and the dusky hue of the whole medullary matter, in which numerous small gray vessels are seen (p. 219.).

A more minute representation, taken from a magnified view of a portion of this section, may be seen in Plate XIX. Fig. 1., where different layers are distinctly traced in the cineritious part, and very numerous cut vessels throughout the medullary matter.

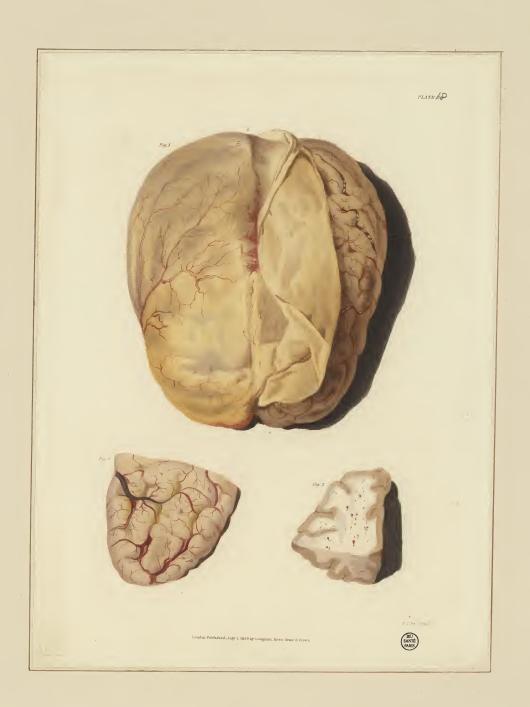


PLATE XVIII.

EFFECTS OF JAUNDICE ON THE BRAIN AND ITS MEMBRANES. (Page 221.)

Fig. 1. The upper part of the brain.—The dura mater has been left entire on the right hemisphere, to show the jaundiced appearance of its external surface. It has been partially detached and thrown back from the right hemisphere, to show the colour of the membrane internally: several of the vessels passing over the convolutions present small patches of cartilaginous deposit, and the large arteries at the basis were most extensively ossified.

This drawing was taken from a woman 70 years of age, who died worn out, after suffering jaundice above four months, connected with numerous tubercles distributed through the liver and obstructing the ducts.

Fig. 2. A portion of the cerebrum covered by the arachnoid and pia mater, showing the yellow tinge imparted to the serum effused between the convolutions.

Fig. 3. A cut portion of the brain, showing the serum separated from

the blood in the vessels to be tinged with bile.

This drawing, as well as Fig. 2., was taken from a woman aged 28, who died of acute jaundice, under which she had laboured about eighteen



PLATE XIX.

CONGESTION IN THE MINUTE VESSELS OF THE BRAIN.

Fig. 1. The appearance of a portion of the brain represented in Plate XVII. when seen through an ordinary lens. The whole medullary substance was found to be covered by fine gray specks and short hair-like vessels, resembling the appearance produced by scraping the nap of fine cloth upon a sheet of white paper. The cineritious portion was composed of layers; and though, owing to the difficulty of making a clean section, they appeared somewhat confused, they were found upon examination to be distinctly four, and sometimes six in number, arranged very regularly within each other. The brown layers are scarcely sufficiently dark, but when viewed through the lens did not appear of quite so deep a colour as when seen with the unassisted eye. A small portion of the arachnoid and pia mater has been gently drawn from the surface of the convolutions, to show the vessels entering into the cineritious substance, in which they are also seen running perpendicularly to its surface, but apparently interrupted as they pass through the different layers:-this appearance may, however, be produced by irregularities in the section; and a few vessels are seen obviously passing through the whole cineritious substance without interruption. (Case CI. p. 219.)

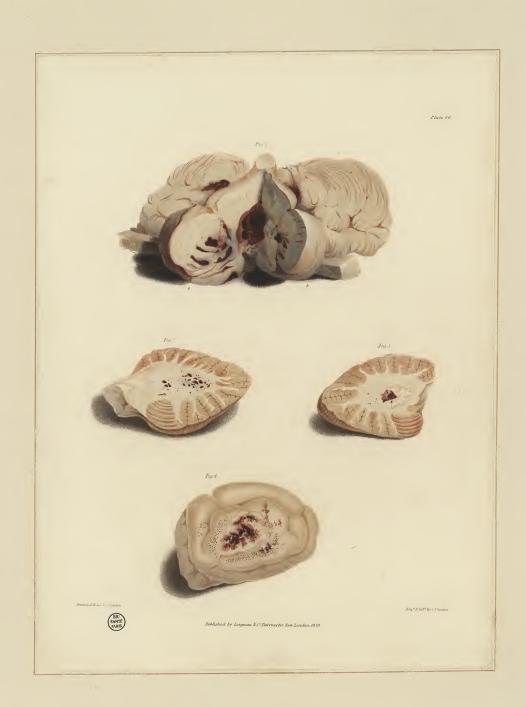
Fig. 5. The mottling or marbling often observed in the brain when congestion has taken place. This appearance depends chiefly, if not entirely, upon blood in the minute vessels, the larger of which are obvious to the eye.—The present drawing was taken from a man who died of bronchitis, and the mottling had become rather more distinct than when the section was first made, by being exposed some hours to the air. (Case XCIV. p. 208.)

Fig. 6. A similar appearance to the last; but the colour of the mottled parts was of a more purple tint, and the blood in the larger cut vessels of a venous character.—This drawing was taken from a man in whom the lungs were very extensively hepatized and cedematous. (Case C. p. 217: see also Case CCLIII. p. 518.)

OSSIFICATION OF THE VESSELS AT THE BASE OF THE BRAIN.

Fig. 2. In this figure, the under part of the cerebellum, the pons Varolii, and the medulla oblongata are seen in outline, and the vertebral





and basilar arteries, and several of the arteries proceeding from them, are in a highly diseased state, their coats having become studded with cartilaginous patches, which are gradually passing into bone: by this disease the diameter of the vessels is rendered irregular, and considerable contortion is produced in their course. This condition of the vessels of the brain is by no means uncommon in advanced age, and is frequently found in those who have died of apoplexy, as was the case with the man from whom this drawing was taken. (Case CXXXV. p. 285.)

ANEURISM IN THE BRAIN.

 $\mathrm{F}_{\mathrm{IG}}.$ 3. represents a small aneurismal sac containing a clot of blood. This had taken place in one of the larger branches of the middle artery of the brain, and by its bursting had produced effusion of blood upon the surface of the brain, and consequent apoplexy. (Case CXXV. p. 267.)

DISEASE OF THE CHOROID PLEXUS.

Fig. 4. This represents the choroid plexus taken from a patient who died apoplectic: a hard yellow deposit had taken place in that portion of the plexus which passes towards the posterior cornu of the ventricle. This deposit, which sometimes assumes the hardness of bone, is not unfrequently connected with apoplexy. (Case CXV. p. 241, 242.)—In this drawing may likewise be seen two or three of those transparent vesicles which are often found more numerously in the choroid plexus, and sometimes become of considerable magnitude.

PLATE XX.

APOPLEXY.

 $F_{\rm IG.\,1.}$ A longitudinal section of the pons Varolii, showing an apoplectic effusion amongst its fibres.

a, the cerebellum.

b, the pons Varolii.

c, a portion of the apoplectic clot effused beneath the cerebellum.

d, a portion of the clot lying between the cerebellum and medulla oblongata.

e, clots of blood in the substance of the pons Varolii. (Case CXXXII. p. 279.)

CONCUSSION.

Fig. 2. A section of the cerebellum, showing the effects of concussion in lacerating the brain internally, and producing the effusion of blood into its substance. (Case CLXXXIX. p. 404.)

 $F_{\rm IG},\,3.\,$ A similar section from the other lobe of the cerebellum, showing a considerable clot of blood close to the corpus rhomboideum.

 $F_{\rm IG},$ 4. The appearance of laceration of the cineritious substance from concussion. (Case CLXXXIX. p. 404.)



PLATE XXI.

APOPLEXY.

Fig. 1. represents the left anterior lobe of the cerebrum, ruptured by the pressure of blood effused within, which had forced its way, by laceration, through the brain, the pia mater, and arachnoid, and had formed a large clot within the dura mater. The dura mater has been turned back, and a portion of it, together with some of the effused clot lying within it, is represented. The whole of the arachnoid is seen of a yellow brown colour, from the stain of the external clot, which however adhered almost entirely to the dura mater. A portion of the cortical substance, situated below and behind the laceration, is discoloured and diseased, and a small quantity of blood has found its way, in patches, between the pia mater and the brain. (Case CXXXI. p. 276.)

F_{IG}. 2. The clot taken from the brain Fig. 1. Its surface is covered with a thin layer of medullary matter, showing the condition of the clot, and its firm attachment to the surrounding injured brain when recently effused.

LONGITUDINAL SINUS OF THE DURA MATER PARTIALLY OBSTRUCTED.

Fig. 3. The internal glandulæ Pacchioni in the longitudinal sinus unusually numerous and large, from a patient who died with symptoms of epilepsy from congestion. (Case CCLXX. p. 548.)

CHRONIC SEROUS CYSTS IN THE ARACHNOID.

Fig. 4. A small cyst formed beneath the arachnoid, near to the internal edge of the hemisphere. On the opposite hemisphere another similar but larger cyst was formed.

F_{1G}. 5. A portion of the upper part of the skull, taken from the same patient as fig. 4, showing two deep depressions corresponding to the two cysts in the arachnoid. (page 437.) See also Plate II. fig. 1.

THICKENING AND ADHESION OF THE SPINAL ARACHNOID.

Fig. 6. A portion of the spine, taken from a patient labouring under general paralysis:—showing remarkable thickening and induration of the arachnoid, which adhered firmly to the cord, and was apparently lined by an adventitious membrane. (Case CLXXIV. p. 380.)

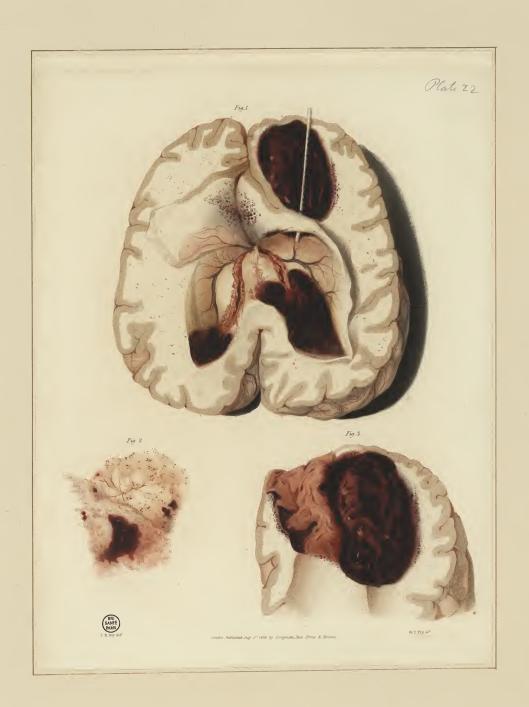


PLATE XXII.

APOPLEXY

Fig. 1. The lower part of the brain, a section having been made horizontally through its whole substance, so as to lay open both the lateral ventricles. (Case CXXXVI. p. 287.)

a, the anterior,
b, the posterior, part of the brain.
c, a clot of blood effused into the anterior lobe of the right hemisphere of the cerebrum; and around part of the cavity, small spots of ecchymosis are seen.

d, the right lateral ventricle, with a large clot of blood in its posterior

e, the left lateral ventricle, with a smaller clot of blood in its posterior

f, a portion of the cerebral matter which in part formed the roof of the right lateral ventricle, and through which the blood had forced its way into the ventricle by an opening, the course of which is marked by the

probe.

g, numerous small ecchymoses occurring around the apoplectic clot; these have partly been brought into view by an oblique section through a portion of the right hemisphere.

h, a portion of the right hemisphere, which has been separated by an oblique section and thrown back to show the ecchymoses formed in the substance of the brain around the apoplectic clot.

i, the situation of the septum lucidum, lacerated by the effusion of blood, which had thus passed from the right to the left lateral ventricle.

k, a portion of the lining membrane of the right lateral ventricle thrown out of its place, with the separated portion of brain h.

Fig. 2. This is intended to show the state of the parietes of the apoplectic cavity, represented at c fig. 1, six days after the attack.

1, the upper portion, had acquired a perfectly smooth but somewhat waved surface, and was studded with clusters of small red spots, which were evidently effusions of blood, but did not appear to be absolutely on the surface, a thin transparent substance passing over the whole.

m, the lower portion, had undergone less of a favourable change, and consisted still of a flocculent surface of brain, mingled with blood.

n shows where several vessels have been brought to the surface by the breaking away of the brain.

Fig. 3. shows the same clot of blood which is represented at c Fig. 1. but more completely displayed by making a deeper horizontal incision, and by throwing back the upper portion of its parietes.

oo, the clot, advancing quite to the limit of the medullary portion in the

rront. p, the brain thrown back, showing the lining surface of considerable framess and easily detached from the clot, except in parts where the surrounding brain has been rendered more soft by ecchymoses, as at q, q, the clusters of ecchymoses distributed in some parts external to the clot.

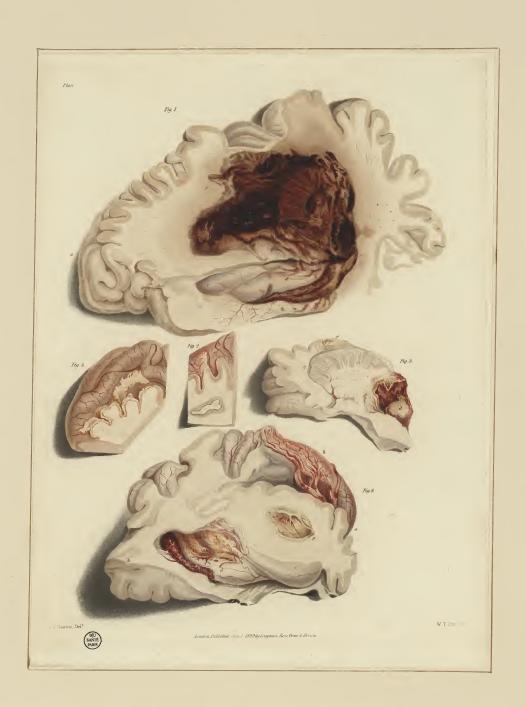


PLATE XXIII.

APOPLEXY.

Fig. 1. Horizontal section of the right hemisphere of the cerebrum, a little below the level of the top of the ventricle, showing a large clot of blood which had found its way into the right lateral ventricle by a rupture of the cerebral substance, near the optic thalamus, the patient surviving the first attack for twelve days. (Case CXXXVIII. p. 291.)

a, the anterior,

- b, the posterior portion of the right hemisphere, the arachnoid and pia mater having been removed.
 - c, the corpus striatum.
 - d, the optic thalamus.
 - e, the posterior cornu filled with the clot.

f, the brain around the clot, discoloured and somewhat softened. Had this patient lived much longer, it is not impossible that a cyst would have formed around the clot, not including the whole of the injured brain, as may be seen in fig. 3. of this plate.

Fig. 2. Horizontal section of part of the left hemisphere of the cerebrum. (Case CXXXIX. p. 294.)

a, the anterior part.

b, the posterior part.

- c, the corpus striatum, a small part of which, at its posterior part, is turned back to show the disease of the optic thalamus, in which the corpus striatum was implicated.
 - d, the optic thalamus, the chief seat of the apoplectic clot.
- g, a cavity, of the size of a small nutmeg, in the medullary substance, lined by a yellow brown membrane evidently vascular, but containing little or no fluid, so that the sides appeared to be coalescing and had indeed adhered at the bottom. A small band of the membrane, with a vessel running along it, was seen passing from side to side.
- h, the middle artery and many diseased branches on the membranes lining the fossa Sylvii.

Fig. 3. A portion of the brain, represented in Fig. 2, removed by a perpendicular section in the direction a-b.

c, the section of the corpus striatum.





d, the section of the optic thalamus, showing a clot of grumous blood, surrounded by a distinct yellow membranous cyst, so firm as to allow of being removed unbroken from the brain, but the part of the thalamus in immediate contact was softened and discoloured. g, a portion of the cyst which is marked g in Fig. 2. Fig. 4. Horizontal section of a portion of the left hemisphere of the cerebrum, showing the remnant of an apoplectic clot, in the form of an opake substance, considerably harder than the brain itself, with a partial softening in its centre and surrounded by hardened parietes. (Case CXLV. Fig. 5. A portion of the same hemisphere, showing an opake yellow flake of deposit like fibrin beneath the arachnoid and pia mater, a peculiar change and wasting having taken place in that part of the cineritious substance to which the pia mater was glued by the deposit. The surface of the yellow flake is only partially seen where the membranes have been tripped off.

These two drawings were taken from a patient in whom, as far as I could ascertain, the paralysis took place on the side where the brain had suffered the most obvious lesion.

PLATE XXIV.

APOPLEXY.

Fig. 1. An apoplectic cavity, as seen in a case where death occurred twenty-three days after the effusion of blood. It contained an ichorous fluid, with a round clot of blood, which was easily detached from the walls of the cavity, except at the lower part. The lining of the cavity was smooth, and several vessels were distinctly seen ramifying on its surface, while some larger vessels were stretched across, as if dissected out by the breaking away of the brain, by which they had been supported. The cavity did not communicate with the ventricle, and the surrounding brain was perfectly healthy and unstained by the blood, though in many parts the edges were irregular from the gradual breaking away of the injured portions. The process of extension appeared, however, in all the upper part, through which the section was made, to have completely finished. (Case CXL. p. 295.)

In Plate XXIII. fig. 1. may be seen the apoplectic cavity, in its less advanced state, when twelve days had elapsed since the effusion of the blood, at which time the extent of the mischief was evidently undefined, though in Plate XXIII. we find the cavity in some parts assuming a firm consistence on the sixth day, while other parts were quite soft and flocculent. In Plate XXIII. fig. 2. we also find some of the vessels dissected out as in the figure now before us; but whether this may be considered the incipient state of a cyst, like that represented in Plate XXV., must remain doubtful; it is more probable that this cyst would have assumed the form represented in Plate XXIII. Fig. 2, or that exhibited in Fig. 3 of the same plate, where the cyst appeared to have formed, although the surrounding brain was not healthy.

Fig. 4. A section of the left corpus striatum, passing through the remnants of two old apoplectic effusions; the one a small cavity, surrounded by a yellow, softened, and discoloured portion of brain; the other a thin filamentous structure, like a contracted membrane, on which several vessels are distributed. (Case CXLI. p. 298.)

Fig. 3. A portion of the dura mater, on the internal surface of which is seen the arachnoidal covering stained with black carbonaceous matter, supposed to be the result of the effusion of blood, which, from the history of the case had probably taken place three years and a half before death. (Case CXXIX. p. 272.)

Fig. 2. Part of the anterior lobe of the right hemisphere of the cerebrum, with a portion of the dura mater adherent; several small yellow tumours, almost like hardened scrofulous glands, were disclosed on partially detaching the dura mater; they were rather superficial, not descending much deeper than the cineritious substance, and were probably the remnants of some former mechanical injury sustained by the brain, either from external force or the rupture of vessels. (Case CLXVI. p. 357.)



PLATE XXV.

CYST IN THE BRAIN.

This represents the right hemisphere of the cerebrum; an horizontal section has been made, passing nearly through its substance, and the upper portion has been turned back. By this means two vascular cysts are laid open, the larger being nearly divided through its middle, while the smaller is but just opened, the orifice having been afterwards enlarged by the scalpel.

The larger of these cysts contained about an ounce of clear serum, and a clot of loosely coagulated blood filled about one sixth of the cavity.

The cyst was very firm, and seemed almost formed of a congeries of vessels, many of which were much convoluted, and others so completely relieved from the parietes of the cyst as to allow of bristles being passed beneath them.

The smaller cyst was considerably thicker than the other, and contained nothing but serous fluid. (Case CXLVI. p. 310.)

The precise nature of this disease is not understood; only thirty-four days had elapsed from the occurrence of the first symptoms which were noticed, and these were of a decidedly hemiplegic character. If, therefore, the cysts had not existed before, they must have been formed with most unusual rapidity; they had a good deal the appearance of those cysts which inclose pus (Plate X. Fig. 2. Plate XI.), but were much more vascular; and it is possible that their extraordinary vascularity depended in part on their close communication with the pia mater, as was found in the case of Ashford, inserted under the head of Tetanus. (Case CCLXXIX.)

In Plate XXII. Fig. 2. and in Plate XXIV. Fig. 1, some appearances may be traced, marking the way in which the vessels are sometimes dissected out by the breaking away of the surrounding cerebral matter, which seems to explain in some degree the condition of the vessels in the cysts we have now before us.

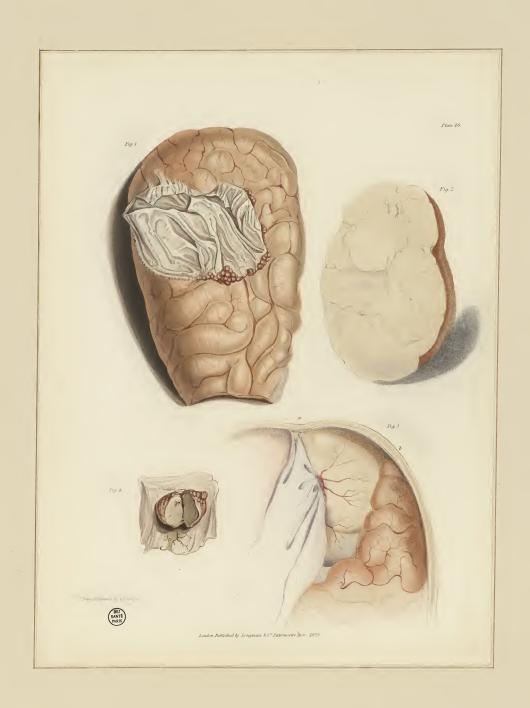


PLATE XXVI.

TUMOURS ARISING FROM THE INTERNAL LINING OF THE DURA MATER.

Fig. 1. Part of the right hemisphere of the cerebrum, to which the dura mater is firmly adherent over a considerable space. The dura mater has been drawn back, so as to bring into view numerous bands of adhesion, and small fungoid tumours attached to the inside of the dura mater, and apparently arising from its arachnoidal lining. (Case CCLXIX. p. 547.)

Fig. 2. Longitudinal section of a tumour attached to the dura mater, and making pressure on the anterior lobe of the right hemisphere of the cerebrum. (Case CLXIII. p. 345.)

Fig. 3. A sketch of the appearance presented by the tumour (Fig. 2.) when the calvaria was first removed and the dura mater raised:— $a\,b$, marks the space occupied by the tumour. The dura mater is turned back, and is still attached to the tumour. (Case CLXIII. p. 345.)

 $F_{\rm IG}$. 4. A tumour of the same kind as the last, growing from the inner side of the dura mater (p. 347).

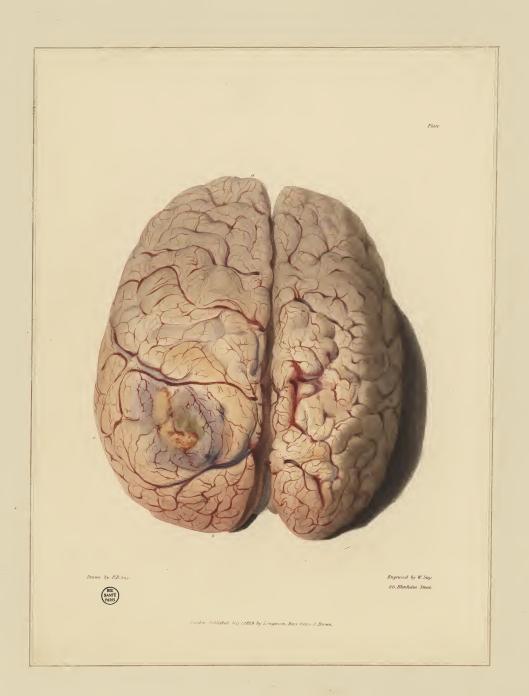


PLATE XXVII.

TUMOUR IN THE BRAIN.

This Plate represents the whole brain removed from the skull, the dura mater having been taken away. The right hemisphere is nearly natural, except that some serum is effused beneath the arachnoid, and that in one or two parts a little sanguineous tinge is to be observed.

The right hemisphere appears much larger than the left, owing to its general want of firmness, which allows it to fall down, and gives to all the convolutions a peculiar flattened form:—a, is the anterior, b, the posterior, part of the hemisphere; and opposite to c is seen a highly diseased portion of the brain, looking as if it had been bruised; vessels are seen running upon it; and in the centre is a yellow part, to which the dura mater was so firmly attached, that a small quantity of the convolution tore away with it. At the posterior and inner margin of the discoloured spot is a small dark stain. The whole of the brain surrounding the disease was remarkably soft. (Case CLXIV. p. 349.)

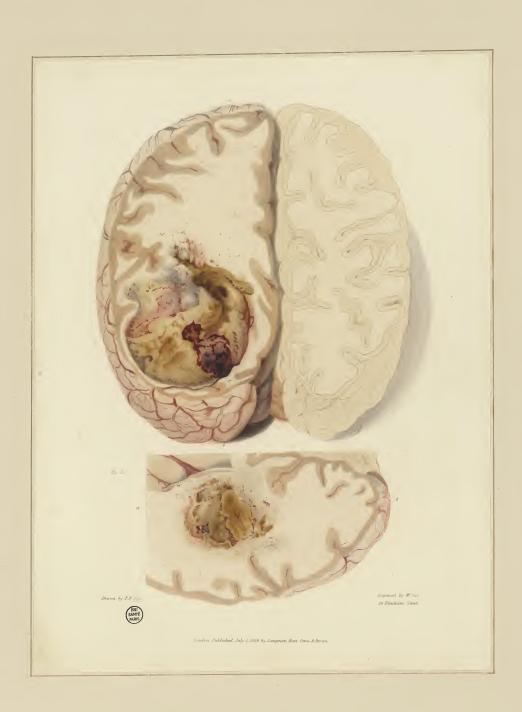


PLATE XXVIII.

TUMOUR IN THE BRAIN.

Fig. 1. represents an horizontal section of the brain depicted in the last Plate: -a, is the anterior, b, the posterior, part of the left hemisphere, and the section has been made considerably above the level of the lateral ventricles.-The right hemisphere, which is healthy, is only sketched in for the sake of affording a comparison in its form and size with the diseased hemisphere. The section was carried through the lower part of the discoloured convolutions, passing below the small dark stain on its inner and lower margin; and when this was done, nearly half the hemisphere appeared to be implicated in the disease, as seen in this Plate.—A bloody mass (c), which might possibly be the remains of a clot of blood, but much altered (hard and resisting like fibrin, and irregularly surrounded by a firm substance, which was in some parts semitransparent, and in small portions almost resembled the cartilaginous texture of scirrhous glands), was cut through, and was found to correspond with the purple spot seen externally on the convolutions. The whole of this diseased and morbidly hardened mass was surrounded by a yellow transparent semigelatinous substance, intersected by fine bands of whitish membranous filaments. This section also opened into a cavity at the anterior part of the diseased portion, which passed down under the hardened mass, and was filled with a clear yellow fluid resembling oil rather than serum, and coagulating by heat.-Although the diseased mass came quite to the surface in some of the parts discoloured externally, yet in other parts a layer of medullary matter, partly marked by bloody points, lined the cortical substance, and the extent of the disease was bounded towards the anterior part by a natural division of the convolutions connected with the fissura Sylvii.

Fig. 2. represents another horizontal section of the left hemisphere, even with the roof of the ventricle, and exposing the corpus striatum and optic thalamus. This displayed nearly the bottom of the diseased parts, where a small portion of membrane was seen forming the lower part of the cavity which had contained the yellow fluid, and on this membrane a fine vessel ramified. About half an inch round was a softened pulpy portion, in which numerous bloody points of cut vessels were seen, and many vessels which were drawn out as the knife passed through the substance. The softened portion extended to the ventricle, but the natural membrane lining that cavity prevented any communication. (Case CLXIV. p. 350.)

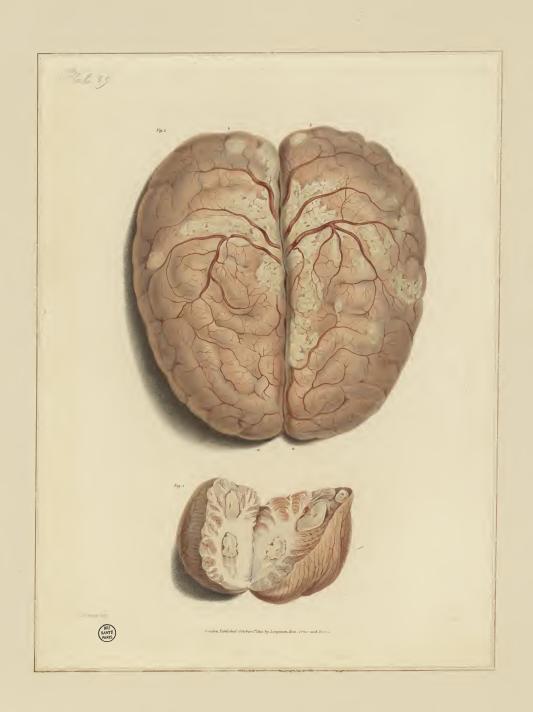


PLATE XXIX.

SCROFULOUS TUBERCLES IN THE BRAIN.

Fig. 1. represents the whole brain of a child of eleven years of age, seen on its superior surface.—a, the anterior, b, the posterior, lobes. (Case CLXVII. p. 359.)

The dura mater was carefully taken off; but as it adhered firmly on several of the diseased parts, small portions of the arachnoid, as well as of the tumours themselves, came away with it

the tunours themselves, came away with it.

The tubercles were immediately beneath the arachnoid, and occupied the cineritious substance; they were of a light yellow colour throughout, and of a curdy or cheesy consistence, softening towards their centres, and in no case descended more than half an inch below the surface.

Fig. 2. A section of the left lobe of the cerebellum, from the same patient, showing scrofulous tubercles, one of which is connected with the corpus rhomboideum, and the others with the cineritious substance of the convolutions. (p. 360.)



PLATE XXX.

SCROFULOUS TUBERCLES IN THE BRAIN.

 $F_{\rm IG},$ 1. An horizontal section having been made through the whole brain represented in Plate XXIX., the superior portion which had been separated, was turned up and the appearance here seen brought into view.

aa, the anterior,

bb, the posterior, part of the brain.

c, a small portion taken from the upper surface of the corpus callosum, by which and by some of the tubercles the two hemispheres are held together.

d, a scrofulous tubercle, apparently imbedded in the medullary matter, but in fact attached to the cineritious substance of the corpus striatum.

In making this section it happened that none of the tubercles on the external surface were divided, but many were seen clustering together, attached to the cineritious substance of the internal surface of both hemispheres, and the vascularity by which they were surrounded bespoke considerable action in the part. (Case CLXVII. p. 359.)

FUNGOID TUMOUR IN THE BRAIN.

Fig. 2. A fungoid tumour attached to the arachnoid and pia mater of the middle lobe of the left hemisphere, in a man who had purulent discharge from the left ear, and fungoid deposit in the lung. (Case LXIV. p. 122.)

e, the anterior portion of the brain.

f, the lateral ventricle.

g, the fungoid tumour attached to the arachnoid and pia mater, and turned back so as to show it more completely.

h, the cavity in the cineritious matter of the convolutions in which the tumour was imbedded.

Fig. 3. A section of the tumour, which appeared to be composed of two, three, or more masses, giving it externally a botryoidal form; and when cut into, it was softer towards its centre, with some yellow spots, and was of a brainlike consistence. (p. 123.)

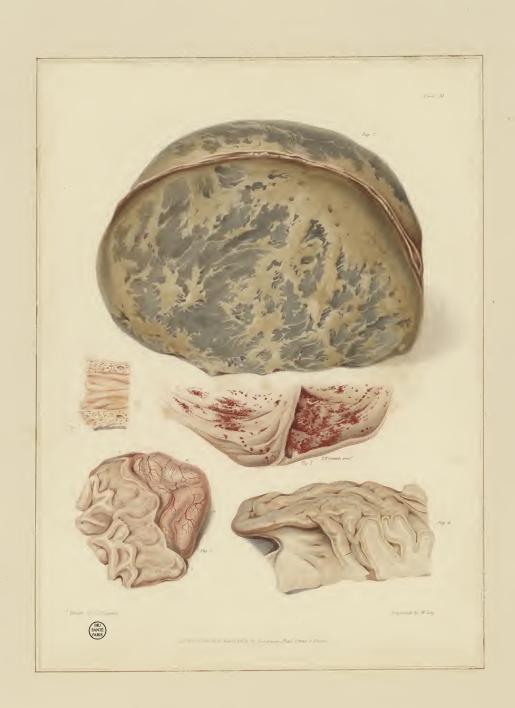


PLATE XXXI.

DURA MATER, WITH ECCHYMOSIS ON ITS INNER SURFACE.

Fig. 1. is a portion of the dura mater, taken from a woman who suffered under symptoms of cerebral pressure. The whole internal surface was marked with small spots of ecchymosis, much more numerous in some parts than others, forming clusters; showing an hæmorrhagic tendency in the vessels of the arachnoid lining the dura mater, such as probably often exists in the vessels of the substance of the brain, causing apoplectic effusion. (Page 331.)

OSSIFICATION OF THE DURA MATER.

Fig. 2. The dura mater, taken from a case of chronic hydrocephalus. It has been dried, and shows very extensive deposit of bony matter in thin plates and fibres in the substance of the membrane. In some parts, near the longitudinal sinus, the bone is almost of the thickness of a shilling. (Page 435.)

SOFTENING OF CINERITIOUS SUBSTANCE, AND ADHESION OF THE ARACHNOID.

SOFIENING OF CINERTITIOUS SUBSTANCE, AND ADHESION OF THE ARACHNOID.

Fig. 3. A portion of the brain of a child who died with serous effusion into the cellular tissue of the pia mater and into the ventricles. (Case CLXX. p. 367.)

aa, is a part of the brain, still covered by its arachnoid and pia mater, the serum having already escaped from beneath it.

bb, is a part of the arachnoid and pia mater drawn back, bringing with it almost the whole of the cineritious substance, which is here seen soft and pulpe.

and pulpy. cc, is the medullary portion of the convolutions, left in its original situation, harder than natural and therefore strongly contrasted with the softened state of the cineritious substance. (Page 367.) (See also Plate I. fig. 5 & 6, and Plate IX. fig. 2.)

BRAIN CONTRACTED .- CINERITIOUS SUBSTANCE EASILY DETACHED IN LAYERS.

Fig. 4. A portion of the middle lobe of the cerebrum, from an old woman who suffered under symptoms of general paralysis and imbacility. The surfaces of all the convolutions are seen contracted and corrugated, and the external layer of the cineritious substance was easily detached in large flakes, as is represented in one portion of the figure. (Case CLXXII. p. 374.) See also Plate I. fig. 6.

CARTILAGINOUS DEPOSIT UPON THE SPINAL THECA.

Fig. 5. A small portion of the theca of the spine, taken from an elderly woman, who laboured under an obstinate form of spasmodic wry neck. The anterior part of the membrane is seen, mottled with small spots, and patches of cartilaginous matter, and this appearance continued along the course of the cervical and dorsal regions. (Case CCXLV. p. 501.)

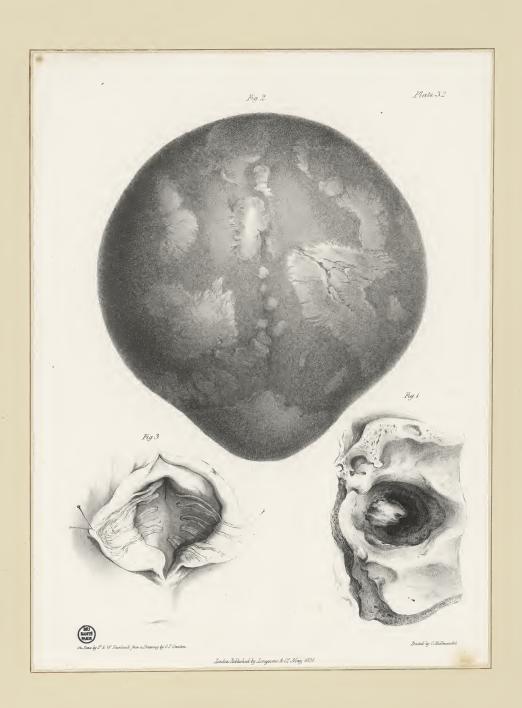


PLATE XXXII.

DISEASED PROCESSUS DENTATUS.

Fig. 1. represents the foramen magnum of the occipital bone seen from above; its extent greatly diminished by the enlarged point of the processus dentatus of the second vertebra. This produced pressure on the spine and consequent paralysis. (Case CXCVII. page 418.)

CHRONIC HYDROCEPHALUS.

Fig. 2. The posterior view of an hydrocephalic cranium in the museum of Dr. Blundell,—illustrating, in a very striking manner, the process of ossification in this disease, where there is an attempt made to form additional ossa triquetra in the spaces between the usual bones of the skull. (Case CCV. Plate XXXV. and XXXVII.) In this case, although the child was so far advanced as to have cut six of its teeth, comparatively little bone was deposited, and the parietal bones were marked by plates of small extent;—the occipital bone was somewhat more firmly formed.

SPINA BIFIDA.

Fig. 3. is taken from a specimen preserved in the Museum of Guy's Hospital, and shows a deficiency in the bony canal of the spine and the peculiar distribution of the nerves forming the cauda equina. A bristle is placed in the opening, through which the spine descends, and a portion of the spine is there seen; but as the fluid had collected anteriorly to the spine, it is forced outwards and attached to the parietes of the sac, from which the nervous fibres are seen running forwards, to pass out of the canal at the natural openings. In laying open the sac the nerves of the right side have been cut off from their connection with the spine. (Page 436 and Case CCC.)

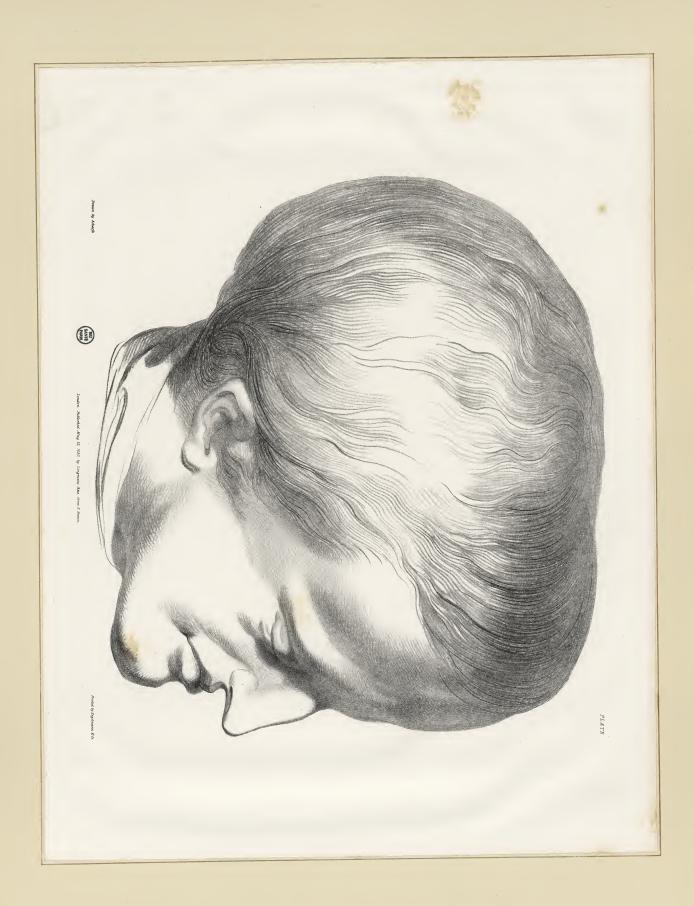


PLATE XXXIII.

CHRONIC HYDROCEPHALUS.

This drawing of the head of James Cardinal was taken from a cast, and is of the natural size, showing the general form before the hairy scalp was removed. (Case CCV. p. 431.)

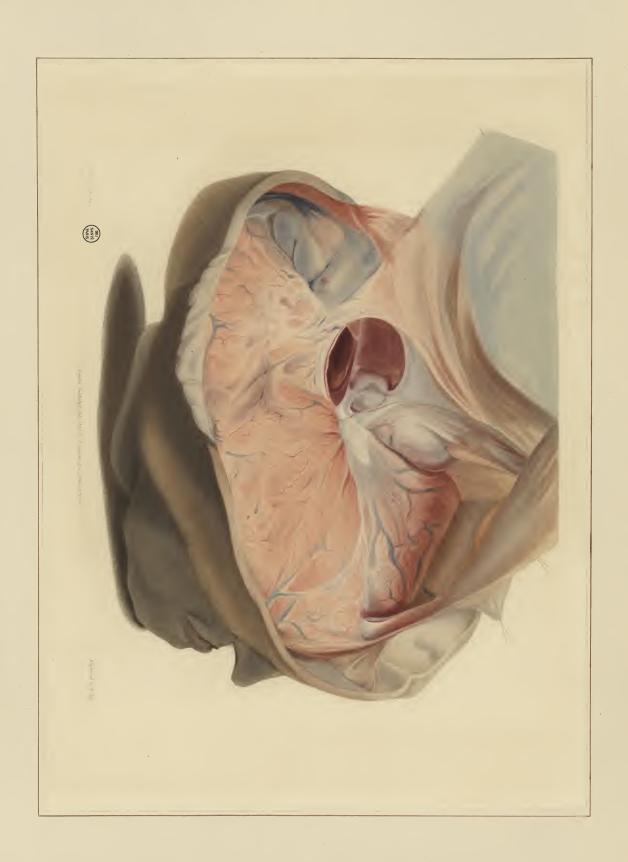


PLATE XXXIV.

CHRONIC HYDROCEPHALUS.

This plate represents the head of James Cardinal, when the calvaria had been removed. The brain is seen occupying the basis of the skull, while all the superior parts were filled with serous fluid.

aa, the anterior lobes of the cerebrum, which have been forced, by the weight of the fluid, completely out of their natural position; for instead of presenting their superior surfaces, they show only their lateral faces, which are, in the natural position, opposed to each other and separated by the falciform process of the dura mater. By this means the falciform process dd had been also displaced, and one portion of the left hemisphere seemed to adhere to it, being thus drawn upwards. In all other parts the brain, when the serum was removed, presented nearly a flat surface on which the arachnoid and pia mater were in various parts opake, and thickened to such a degree that in conjunction with the dura mater, to which some unnatural adhesions had taken place, they formed a considerable support to the fluid, and therefore a protection to the brain from its pressure.

b, the posterior lobe of the right hemisphere.

c, a portion of the dura mater, which, having lost the support of the fluid it contained, is laid open and held up artificially.

dd, the falciform process of the dura mater, at the lower part of which is the opening communicating with the lateral ventricle, affording a free passage to the fluid.

e, a part of the cerebellum, covered by the tentorium. (Case CCV. p. 432.)

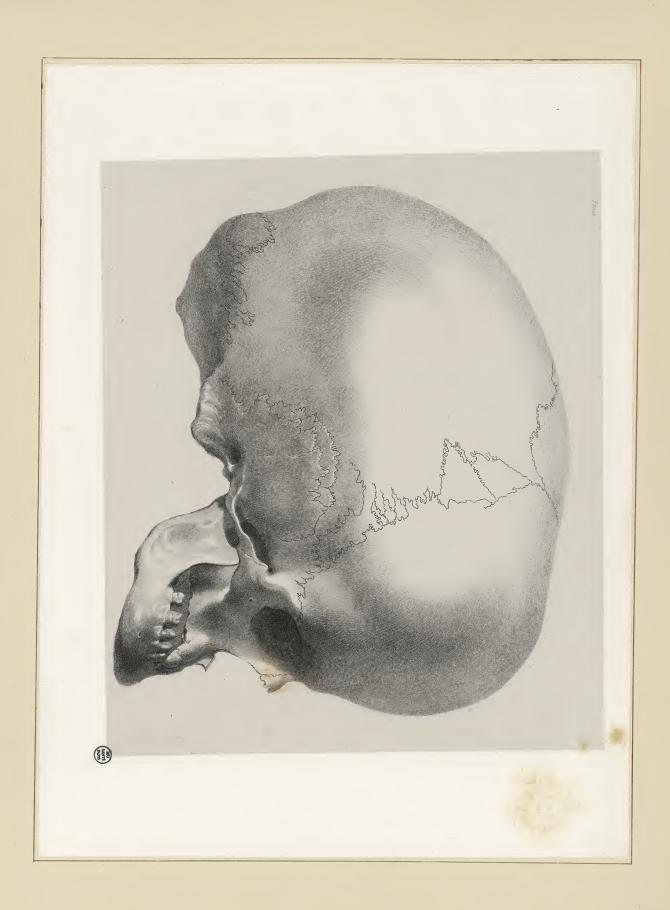


PLATE XXXV.

CHRONIC HYDROCEPHALUS.

 $S_{\rm KULL}$ of James Cardinal (Case CCV. p. 433.), presenting a side view, and showing several ossa triquetra in the line of the coronal suture.

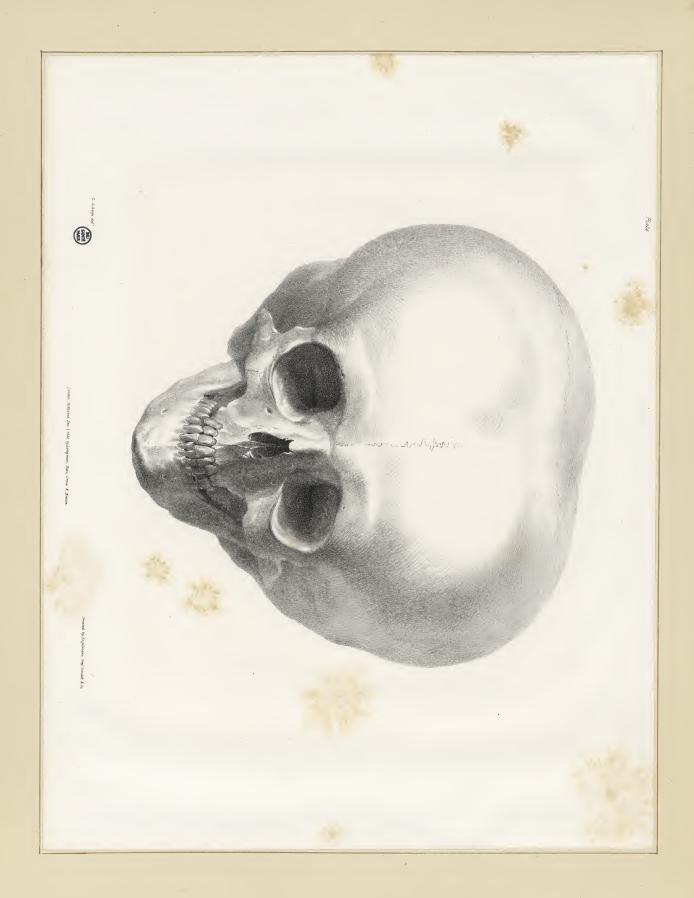


PLATE XXXVI.

Skull of James Cardinal (Case CCV. p. 433.), presenting a front view, and showing the great disproportion between the bones of the face and the cranium.



PLATE XXXVII.

CHRONIC HYDROCEPHALUS.

A VIEW of the cranium of James Cardinal, (Case CCV. p. 433.) seen from above, where a large collection of subsidiary ossa triquetra has been formed, showing the process by which nature assists in filling up the wide expanse of membrane:—each separate bone, of course, commencing by a separate centre of ossification, as illustrated in Plate XXXII. Fig. 2.



PLATE XXXVIII.

DISEASES OF THE UTERUS GIVING RISE TO EXCESSIVE NERVOUS IRRITATION.

Fig. 1. Disease of the neck of the uterus, apparently commencing in

the glands of Naboth.

a, the fundus of the uterus.
b, part of the vagina.

The uterus has been laid open by an incision from the fundus to the vagina, and the disease is seen occupying not only the lining membrane of the neck and part of the eavity of the uterus, but has produced an unatural thickening in the substance of the neck. At the os uteri, and growing from it, was a tumour of a vesicular character, of the size of a large hazel-nut, containing a transparent fluid and projecting towards the vagina. The cervix uteri itself was much thickened and hard to the touch; and on being cut through, two or three cysts, of the size of peas, were seen in its substance. About half an inch from the tumour just described, attached to one side of the uterus internally, another similar tumour arose, evidently composed of four or five cysts, parts of which were seen through the membrane which covered the whole. Having divided this tumour by carefully cutting down upon it, a cyst of considerable size was laid open in the body of the tumour, and from the bottom of that arose a globular vesicular body. Still further along the internal cavity of the uterus might likewise be seen indications, though less obvious, of similar vesicles forming within the substance of the organ; and it was to be inferred that the larger tumours had like them been formed beneath the mucous lining of the cavity, and had, by their enlargement, forced the membrane before them, and thus become prominent above the surface. (Case CCXX. p. 465.)

Fig. 2. Is a sketch of the tumour within the uterus, opposite to d, fig. 1, when an incision had been made through it, showing the vesicular character just described.—The patient in whom this disease occurred was seventy-four years of age and the subject of nymphomania.

Fig. 3. Part of the uterus and its appendages described in page 492. The subject of this disease died of chorea. (Case CCXXXIX.)

e, the fimbriated extremities of the Fallopian tubes, tipped with deposits of semitransparent bone, looking like large grains of sand of irregular and rather botryoidal form.

f, a vascular cyst on a long peduncle attached to the Fallopian tube. g, the ovary, containing a cyst of the size of a small hazel-nut, full of a tenacious dull red substance, of just sufficient consistence to allow of being

 F_{1G} , 4. A magnified view of the cyst represented at f, showing the vascularity derived from the peritoneal coat of the Fallopian tube.



PLATE XXXIX.

EPILEPSY.

 $T_{\rm H\,IS}$ Plate represents the external view of the skull in a case of long-continued epilepsy. The whole was covered with an embossed surface, and the sutures were almost obliterated. This appearance on the external surface of the calvaria is by no means common. (Case CCLXV. p. 541.)

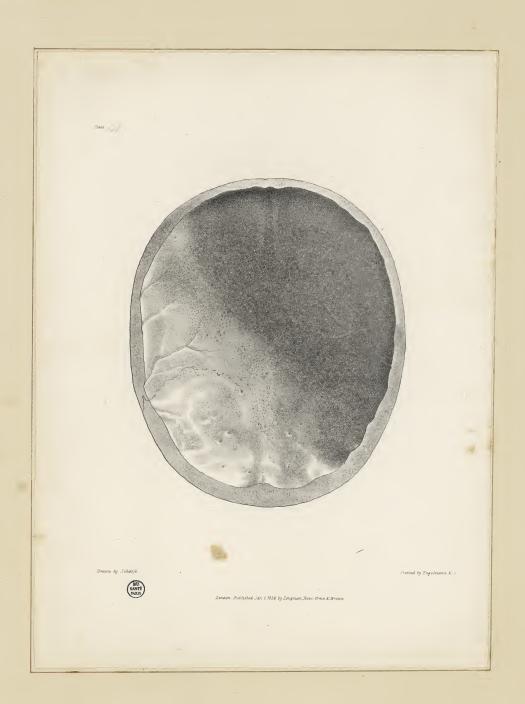


PLATE XL.

EPILEPSY.

This Plate represents the internal view of the calvaria, of which the external surface is seen in the last plate:—the bone was greatly thickened, though the artist has, in this drawing, rather exceeded the original. The anterior parts were most increased, and the frontal bone encroached considerably on the capacity of the cavity. The surface is marked by numerous orifices through which vessels passed, and the courses of the large vessels of the dura mater are distinctly seen. The whole substance of the bone was unusually hard and heavy, but this change was most marked in the internal and external plates.



